

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMERIFORGE GROUP, INC.,
Petitioner,

v.

WORLDWIDE OILFIELD MACHINE, INC.,
Patent Owner.

Case IPR2015-00233
Patent 6,601,650 B2

Before JOSIAH C. COCKS, JAMES A. TARTAL, and
GARTH D. BAER, *Administrative Patent Judges*.

COCKS, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and C.F.R. § 42.73

I. INTRODUCTION

Petitioner, Ameriforge Group, Inc. (“Ameriforge”), filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1, 2, 4–10, 12–14, 16, 18, and 19 of U.S. Patent No. 6,601,650 B2 (“the ’650 patent”). We issued a Decision to institute an *inter partes* review (Paper 17, “Inst. Dec.”) of the ’650 patent on the following grounds:

- A. Claims 9 and 12 are unpatentable under 35 U.S.C. § 102(b) as anticipated by Baker¹;
- B. Claims 1, 2, 4–10, 12–14, 16, 18, and 19 are unpatentable under 35 U.S.C. § 103(a) over Baker and Dare²;
- C. Claims 1, 2, 4–7, 9, 12–14, 16, 18, and 19 are unpatentable under 35 U.S.C. § 103(a) over Baker and Collie³; and
- D. Claims 6–8 and 10 are unpatentable under 35 U.S.C. § 103(a) over Baker and Schlegelmilch.⁴

Inst. Dec. 26.

After institution of trial, Patent Owner, Worldwide Oilfield Machine, Inc. (“WOM”), filed a Patent Owner’s Response (Papers 20, 22 “PO Resp.”),⁵ to which Ameriforge replied (Paper 25, “Pet. Reply”). WOM also filed a Motion to Seal. Paper 21.⁶ Oral argument was conducted on

¹ U.S. Patent No. 4,997,162 issued March 5, 1991 (Ex. 1002).

² U.S. Patent No. 4,215,749 issued August 5, 1980 (Ex. 1003).

³ U.S. Patent No. 7,013,970 B2 issued March 21, 2006 (Ex. 1004).

⁴ *The Design of a Coiled Tubing Cutter for Use in Subsea Oil Drilling Applications*, Masters Thesis, Massachusetts Institute of Technology, 1999 (Ex. 1005).

⁵ Paper 20 is a public, redacted version of Patent Owner’s Response, and Paper 22 is a version of the Response that currently is available only to the parties and Board.

February 3, 2016. A transcript of that argument has been made of record.
Paper 36, “Tr.”

We have jurisdiction under 35 U.S.C. § 318(a). After considering the evidence and arguments of both parties, and for the reasons set forth below, we determine that Ameriforge met its burden of showing, by a preponderance of the evidence, that claims 1, 2, 4–10, 12–14, 16, 18, and 19 of the ’650 patent are unpatentable.

A. Related Matters

The ’650 patent is the subject of litigation styled *Worldwide Oilfield Machine, Inc. v. Ameriforge Group, Inc. d/b/a AFGlobal Corp.*, Civil Action No. 4:13-cv-3123 (S.D. Tex.). Pet. 1; Paper 5, 2.

B. The ’650 Patent (Ex. 1001)

The ’650 patent is titled “Method and Apparatus for Replacing BOP with Gate Valve.” In setting forth the background of the invention, the ’650 patent explains:

Blowout Preventor (B.O.P.) stacks are frequently utilized in oilfield wellbore Christmas trees such as, for instance, lower riser packages in offshore wells.

Ex. 1001, 1:18–20.

In that respect, the term “Christmas trees” is industry nomenclature for the assemblies that are placed on a wellhead and operate to control the flow of hydrocarbons or oil from the well. The ’650 patent further expresses that B.O.P. (or “BOP”) stacks have certain disadvantages, specifically:

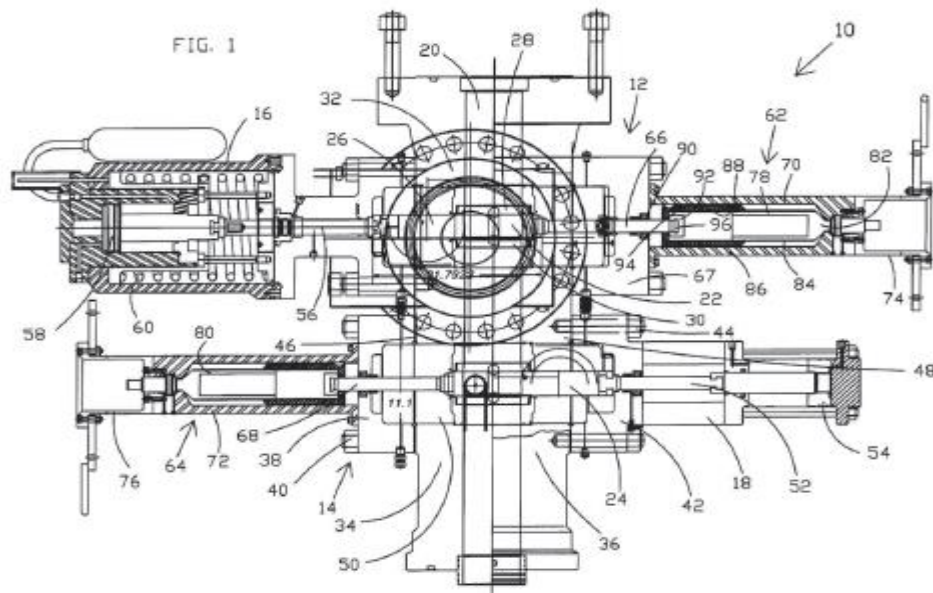
⁶ WOM is seeking to seal portions of its Patent Owner Response (Paper 22), and portions of a Declaration of William G. Kinnear (Paper 23). Ameriforge did not file an opposition to the Motion to Seal.

B.O.P. stacks tend to be quite bulky and heavy, which are undesirable features especially in lower riser packages for undersea operation where space is often at a premium. B.O.P. stacks tend to be expensive for initial installation. Moreover, if maintenance is required, then the maintenance costs for replacing such B.O.P. stacks can be many times the original installation costs. B.O.P. stacks may frequently require maintenance after cutting pipe is required. For instance the cut pipe may become stuck within the B.O.P. stack blocking other operations.

Id. at 1:23–32.

The '650 patent also notes that wellbore Christmas trees generally also incorporate “gate valves with one or more cutting edges for cutting wireline,” but that “such gate valves have not been utilized to replace B.O.P. stacks.” *Id.* at 1:33–36. The Abstract of the '650 patent describes that “[t]he present invention discloses apparatus and methods for replacing a BOP with a gate valve to thereby save space, initial costs, and maintenance costs that is especially beneficial for use in offshore subsea riser packages.”

Furthermore, in addressing the perceived disadvantages of a BOP stack, the '650 patent describes its invention as being an “improved gate valve with capability of reliably and repeatably cutting tubulars of at least 2¾” or more.” *Id.* at 1:46–49. Figure 1 of the '650 patent is reproduced below:



As shown in Figure 1 above, subsea valve assembly 10 includes gate valve 12 and gate valve 14. *Id.* at 3:22–23. Figures 2 and 3 of the '650 patent are reproduced below, and depict the configuration of one or more of the above-noted gate valves.

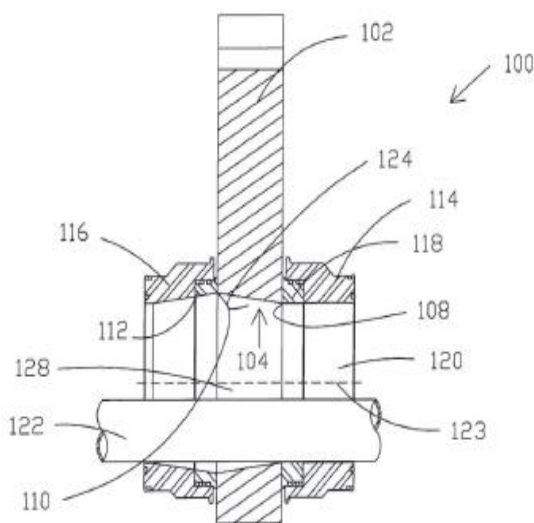


FIG. 2

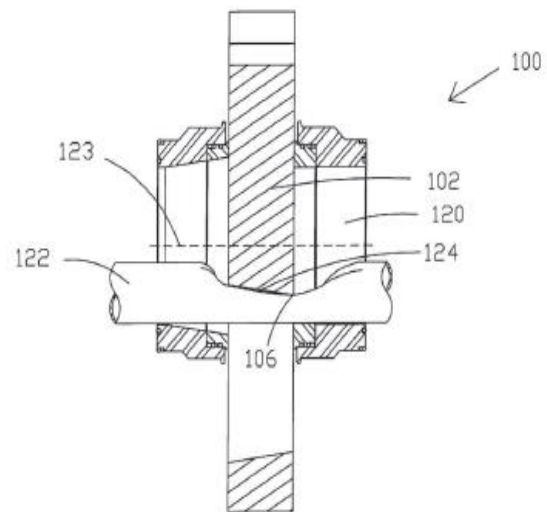


FIG. 3

As shown in Figures 2 and 3 above, valve 100 may be operated to seal off path 120, and, during that process, may also cut tubular 122. *Id.* at 7:61–62. More particularly, the '650 patent explains the following:

FIG. 2 shows gate valve 100 for 7³/₈ inch casing having 2⁷/₈ inch production tubing extending therethrough. . . . Gate element 102 is designated to have a blade 104 with initial cutting surface 106 having a minimum gate aperture 128 diameter directly adjacent seat 108.

* * *

As shown in FIG. 3, when valve 100 is closed such that gate element 102 moves in the direction of sealing off flow path 120, then cutting edge 106 engages, crushes, and cuts pipe [122]. As pipe [122] is being cut the sloping or inclined edge 124 of the gate valve acts to push the pipe [122] out of valve 100. Therefore, unlike many other cutting devices such as BOP's, pipe [122] is not stuck in the valve. If desired, pipe [122], can be pulled during cutting such as toward the left direction as shown in FIG. 3, or not. In any event, due to the design of cutting edge 106 and inclined edge 124, the present invention may be reliably utilized for cutting tubing and/or wireline.

Id. at 7:5–12; 7:63–8:8.⁷

Thus, gate element 102 operates to seal passageway 120, and, by operation of cutting edge 106 and inclined edge 124, cuts pipe 122 and directs it in the left direction, as shown in Figure 3.

C. Illustrative Claims

Claims 1, 9, and 14 are independent, and are illustrative of the claimed subject matter. Those claims are reproduced below:

⁷ The reproduced portion of the '650 patent spanning columns 7 and 8 uses reference character "106" in designating both the "cutting edge" and "pipe." As best can be determined, however, reference character 122 is intended to designate the pipe.

1. A method for a gate valve mountable onto a wellbore casing, said gate valve being operable for controlling fluid and cutting tubing, comprising:

- mounting said gate valve on said well casing for controlling fluid flow in place of at least one BOP on said well casing;

- mounting a slidable gate within said gate valve, said slidable gate having a first side and a second side opposite said first side;

- providing first and second seats for said slidable gate;

- positioning said slidable gate between said first and second seats such that said first side of said gate is adjacent said first seat and said second side of said gate is adjacent said second seat;

- providing that said first and second seats each have different internal diameters adjacent said slidable gate;

- forming an aperture through said slidable gate;

- providing a cutting edge on said slidable gate of said gate valve within said aperture such that said cutting edge defines at least a portion of said aperture.

9. A method for cutting a pipe within a wellbore utilizing a gate valve such that said pipe is pushed away from a gate within said gate valve, said gate defining an aperture therethrough, said method comprising:

- providing said gate valve with a cutting edge on one side of said gate along said aperture through the gate;

- providing a single inclined surface on said aperture through said gate such that said aperture opens from a minimum size adjacent said cutting edge to a maximum size distal said cutting edge, said single inclined surface extending from said minimum size to said maximum size of said aperture;

- inserting said pipe into said wellbore through said gate valve;

- closing said gate within said gate valve, and

- cutting said pipe as said gate closes such that said inclined surface produces a force on said pipe to move said pipe away from said gate.

14. A gate valve for a subsea riser package installation, said gate valve comprising a valve body defining a flow passageway therethrough, said gate valve being operable for cutting a tubular extending through said gate valve and said subsea riser package, said subsea riser package installation being operable for replacement of a B.O.P, said subsea riser package being connectable to a wellbore casing, said subsea river package installation further comprising:

a sliding gate within said gate valve;

a cutting edge mounted on one side of said sliding gate;

an inclined surface adjacent said cutting edge such that said cutting edge and said inclined surface define at least a portion of aperture through said sliding gate;

a hydraulic actuator for said gate valve operable to apply sufficient force to said sliding gate to cut said tubular; and

a first seat on a first side of aid sliding gate and a second seat on a second side of said sliding gate, at least one of said first seat of said second seat defining an interior passageway with an axial seat length wherein said interior passageway comprises a conical surface extending along a substantial portion of said axial sea length.

II. ANALYSIS

A. Claim Construction

We interpret a claim of an unexpired patent using the “broadest reasonable construction in light of the specification of the patent in which it appears.” 37 C.F.R. § 42.100(b); *see In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278–79 (Fed. Cir. 2015) (“We conclude that Congress implicitly adopted the broadest reasonable interpretation standard in enacting the AIA.”), *cert. granted sub nom. Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 890 (mem.) (2016). Claim terms also are given their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech.,*

Inc., 504 F.3d 1249, 1257 (Fed. Cir. 2007). Nevertheless, a “claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer” and clearly set forth a definition of the claim term in the specification. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002).

For purposes of our Decision instituting this *inter partes* review, no terms of the claims of the ’650 patent required any special meaning, and, thus, all terms were afforded their broadest reasonable meaning, as would be understood by a skilled artisan in light of the Specification. Inst. Dec. 9. We made explicit that meaning for the following claim terms/phrases (*id.* at 9–12):

Term/Phrase	Construction
“cutting edge”	“a narrow surface that performs the cutting function.”
“for controlling fluid flow in place of at least one BOP on said well casing” (claim 1), and “said subsea riser package installation being operable for replacement of a B.O.P.” (claim 14).	“requiring a gate valve that is sized suitably to perform the functions of wellbore sealing, tube cutting, and fluid flow controlling that would be expected of a BOP stack.”

Neither party offers an alternative construction for “cutting edge,” and, based on the record developed during trial, we discern no reason to alter the meaning provided above. Ameriforge, however, does propose a slightly altered construction for the phrases concerning “in place of at least one BOP” and “replacement of a B.O.P.” To that end, Ameriforge contends the following:

For purposes of its Institution Decision, the Board determined that claims 1 and 14 of the ’650 Patent require “a

gate valve that is sized suitably to perform the functions of a wellbore sealing, tube cutting, and fluid flow controlling that would be expected of a BOP stack.” The functions identified are applicable, but the suggestion that the valve can replace an entire BOP stack is not fully consistent with the way a person of ordinary skill would interpret these claims. Ex 1022 at ¶¶ 18–23. For the reasons below, Petitioner requests that the Board revise this determination to be that claims 1 and 14 of the ’650 Patent require “a gate valve that is sized suitably to perform the functions of a wellbore sealing, tube cutting, and fluid flow controlling that would be expected of a BOP.”

Pet. Reply 1.

In support of its altered claim construction, Ameriforge makes reference to a Supplemental Declaration of Dr. Glen Stevick (Ex. 1022). In that Declaration, Dr. Stevick testifies that the ’650 patent draws distinction between a “BOP stack” and a single “BOP” (Ex. 1022 ¶ 19), and that the claims themselves refer to “at least one BOP” (claim 1) or “a B.O.P.” (claim 14) rather than a BOP “stack” (Ex. 1022 ¶¶ 20–21). WOM’s own declarant, Mr. Gregg Perkin, also testifies that a “BOP stack” is understood as being composed of multiple individual BOPs. Ex. 2004 ¶ 32.

We are cognizant that the ’650 patent generally characterizes its invention as being directed to a gate valve “suitable for replacing an entire BOP stack in a lower riser package.” Ex. 1001, 1:11–16. Nevertheless, in light of the record before us, including the noted distinction drawn between a BOP stack and a single BOP, and the plain language of the claims in referring only to a “BOP” or “B.O.P.,” we determine that the broadest reasonable interpretation of the pertinent phrases in claims 1 and 14 is “a gate valve that is sized suitably to perform the functions of wellbore sealing, tube cutting, and fluid flow controlling that would be expected of a BOP.”

B. Overview of Prior Art

1. Baker

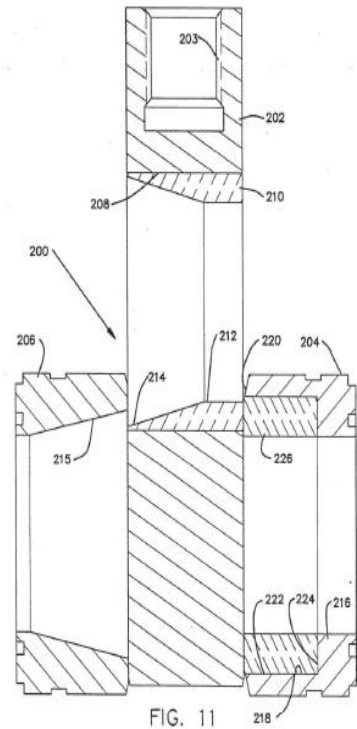
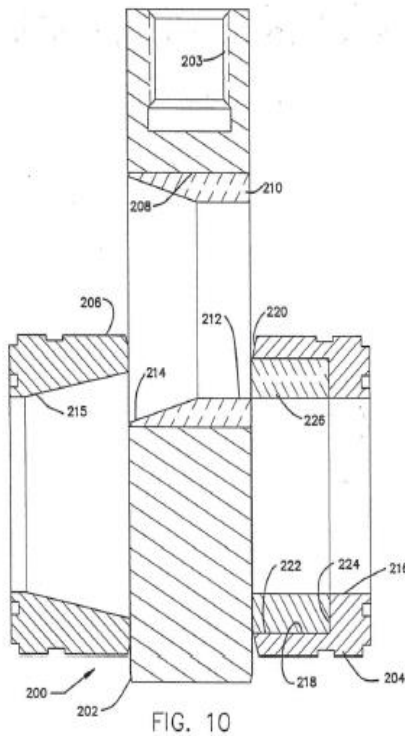
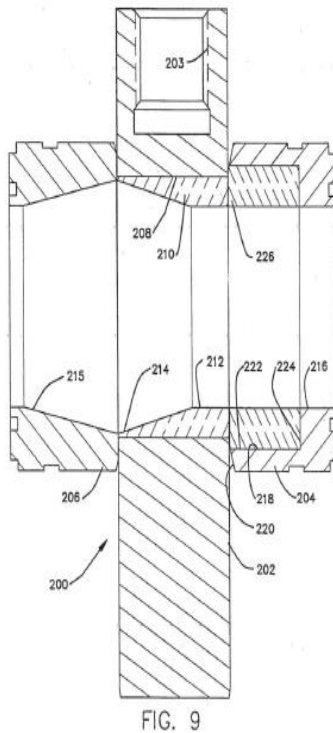
Baker is titled “Shearing Gate Valve.” Ex. 1002, Title. Baker describes the following with respect to its disclosed invention:

An object of the present invention is to provide an improved shearing type of gate valve in which the gate has a seal which is not damaged by the shearing action of the gate.

Another object is to provide an improved shearing type of gate valve in which the valve may be retained in service after multiple shearing closures of the gate.

Id. at 2:15–22.

Baker’s Figures 9, 10, and 11 (reproduced below) depict an embodiment of a valve according to Baker’s invention that provides for the shearing of a cable element. *Id.* at 5:63–67.



Figures 9, 10, and 11 of Baker, above, depict valve 200 including gate valve 202. *Id.* at 5:63–6:8. The gate valve is positioned between seat rings 204 and 206, and includes bore 208. *Id.* Bore 208 extends through gate 202 and insert sleeve 210 is positioned therein. *Id.* at 6:5–6. Sleeve 210 includes outlet bore 212 and inlet tapered surface 214, which diverges outwardly toward seat ring 206. *Id.* at 6:9–11. Baker further explains the following:

As shown in FIGS. 9, 10 and 11, gate 202 is shown in its open position (FIG. 9), in its position at the completion of shearing of the cable element (FIG. 10), and in its closed position of sealing against seat ring 204. As can be seen in FIG. 10, with the completion of the shearing of the cable element extending through gate 202, there is sufficient open space between the interior of gate insert sleeve 212 and the interior of seat ring 206 to allow the sheared cable element to fall into the well without any additional shearing of the cable element.

Id. at 6:25–34.

Figure 11 illustrates “the gate in its closed and sealed position with respect to the seat rings.” *Id.* at 3:1–3.

Baker also expresses the following in connection with its above-noted discussion of the embodiment of its invention shown in Figures 9, 10, and 11:

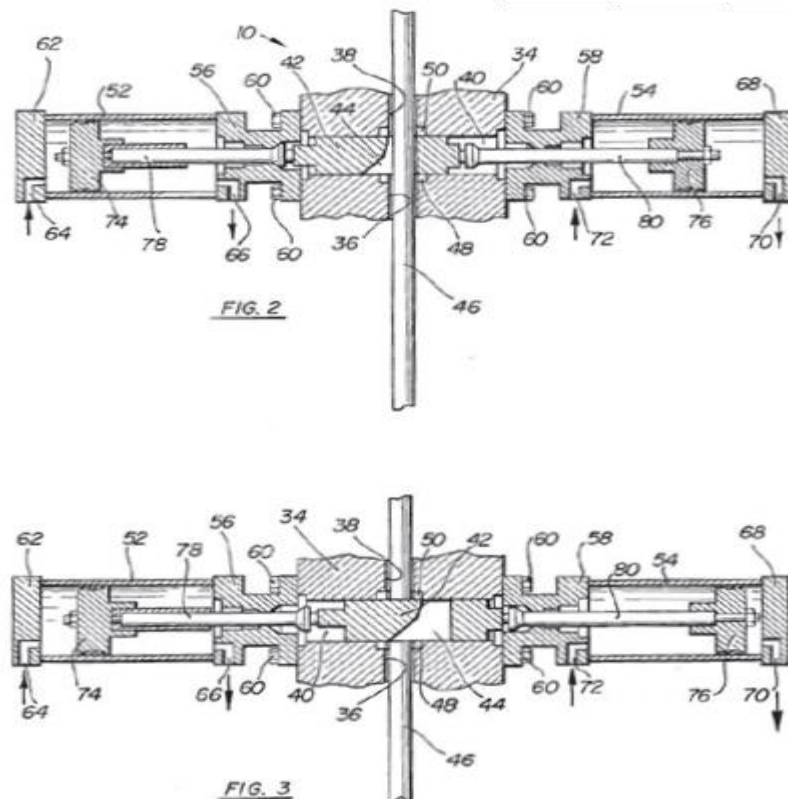
[T]he improved design of the shearing gate valve of the present invention provides a gate valve which can shear a wire line or other tubular member extending therethrough without damage to the hardened insert rings or the hardened insert sleeves or without in any way interfering with the sealing of the gate and the seat ring.

Id. at 6:35–41.

2. Dare

Dare is titled “Gate Valve for Shearing Workover Lines to Permit Shutting in of a Well.” Ex. 1003, Title. Dare describes that its invention is directed to a “gate valve which is capable of being closed in a manner to cut tubing and other suspension members that extend downwardly into a well.” *Id.* at 1:6–10. Dare also describes that its gate valve is used in a “subsea wellhead and Christmas tree assembly.” *Id.* at 2:42–45. In such applications, “macaroni tubing” of varying thickness may be used. *Id.* at 1:11–32. Dare explains that its gate valve is “capable of readily shearing the largest and thickest ‘macaroni’ type tubing employed in well treatment and workover operations, as well as smaller suspension members such as wires and cables.” *Id.* at 2:4–9.

Dare’s Figures 2 and 3 are reproduced below:



Figures 2 and 3 of Dare, above, show sectional views of a portion of a gate valve according to Dare's invention. In particular, Figure 2 shows a gate in an open position with a string of "macaroni" tubing suspended therethrough. Ex. 1003, 2:22–27. Figure 3 depicts the gate moving to a closed position to shut in the well and cut off the tubing string. *Id.* at 2:27–29. Dare's Figure 5 is reproduced below:

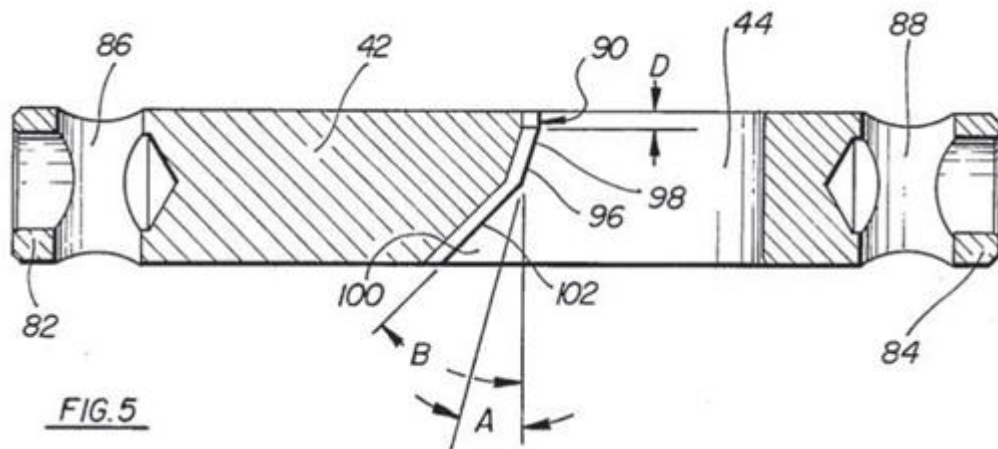


Figure 5 of Dare, above, illustrates a sectional view of a gate. As shown in Figure 5, gate 42 includes port 44 whose left side is the form of cutting edge 90. *Id.* at 4:13–25. Cutting edge 90 is "located adjacent to the flat upper surface of gate 42." *Id.* at 4:25–27. The cutting edge is formed with dimension "D", which represents the thickness of the cutting edge, and may be varied in size. *Id.* at 4:27–32. The cutting edge includes undercut portion 96 with inclined surface 98, and lower undercut portion 100 with inclined surface 102. *Id.* at 4:39–53.

Dare also explains the following in connection with its invention:

Each gate 42 is normally in its open position so that suspension members such as tubing 46 may be extended through each passage of the valve, the Christmas tree, the wellhead assembly and into the well for the performance of various workover and

well treatment operations and other services. In the event of an emergency requiring that the well be immediately shut in, each gate 42 may be forcefully closed by the hydraulic actuator mechanism to shut in the well and shear tubing 46 and other suspension members extending in to the well.

When gate 42 is forcefully closed cutting edge 90 cooperates with an adjacent corner 104 (see FIG. 6) of the upper of downstream valve seat 50 to shear off the large diameter tubing 46 or the smaller diameter “macroni” type tubing 106 shown in FIG. 6.

Ex. 1003, 4:56–5:3.

Dare further describes the following:

The location of cutting edge 90 adjacent the upper surface of gate 42 and the provision of undercut portions 96 and 100 permits the sheared suspension member to freely fall downwardly through port 44 and through the Christmas tree valves in the well without jamming gate 42.

Id. at 5:24–29.

3. *Collie*

Collie is directed to a “completion system comprising a christmas tree mounted on a wellhead housing.” Ex. 1004, 1:37–39. An embodiment of Collie’s system includes “lower riser package 128” that operates with coiled tubing string, and describes that the system may be used in situations where a BOP stack has been removed. *Id.* at 6:36–60. Collie also discloses the following:

Installation and recovery of the coiled tubing string may be carried out from a lightweight intervention vessel, without the use of a BOP. The lower riser package includes upper and lower valves 138, 140 (for example large bore gate valves) at least one of which may, if required in an emergency, be used to shear the coiled tubing string.

Id. at 6:53–59.

4. *Schlegelmilch*

Schlegelmilch is a thesis from the Massachusetts Institute of Technology titled “The Design of a Coiled Tubing Cutter for Use in Subsea Oil Drilling Applications.” Ex. 1005, Title. The document includes detailed description of determining the amount of cutting force necessary to shear coiled tubing of various sizes and dimensions. *See, e.g., id.* at 41–42.

C. *Anticipation*

Ameriforge proposes that claims 9 and 12 are anticipated by Baker. Anticipation is established when a single prior art reference discloses all elements of the claimed invention. *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990). Here, Ameriforge contends that all of the features of claims 9 and 12 are disclosed in Baker.

1. *Claim 9*

As noted above, claim 9 is independent and drawn to a “method for cutting a pipe within a wellbore utilizing a gate valve such that said pipe is pushed away from a gate within said gate valve, said gate defining an aperture therethrough.” Ameriforge points to content of Baker in its Petition that it contends discloses all the features of claim 9. Pet. 24. Ameriforge also relies on the Declaration testimony of its declarant, Dr. Glen Stevick (Ex. 1011). *Id.* The focus of the disagreement between Ameriforge and WOM rests on the following steps in claim 9:

- providing said gate valve with a cutting edge on one side of said gate along said aperture through the gate;
- providing a single inclined surface on said aperture through said gate such that said aperture opens from a

minimum size adjacent said cutting edge to a maximum size distal said cutting edge, said single inclined surface extending from said minimum size to said maximum size of said aperture. . . . cutting said pipe as said gate closes such that said inclined surface produces a force on said pipe to move said pipe away from said gate.

In that respect, at issue is whether Baker discloses: (1) the claimed “cutting edge”; and (2) the act of cutting the pipe such that an “inclined surface” of the gate valve “produces a force on said pipe to move said pipe away from said gate.”

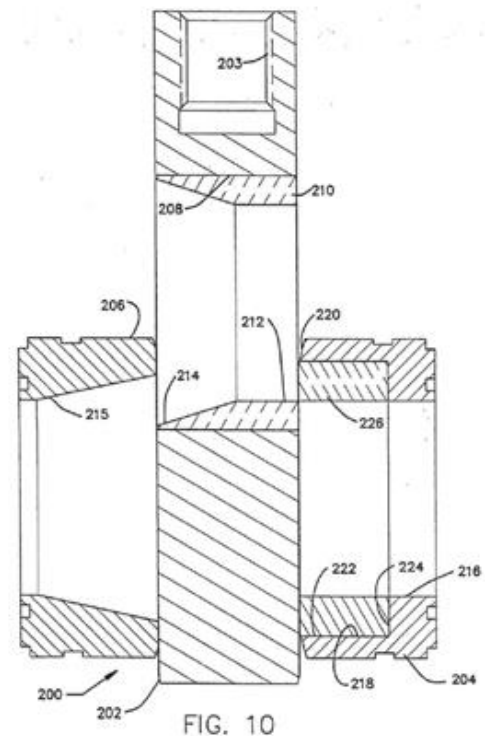
a. “cutting edge”

As set forth above, we construe “cutting edge” as “a narrow surface that performs the cutting function.” In the Petition, Ameriforge urges that Baker accounts for that feature in Figures 9 and 10, stating that the cutting edge disclosed there is the “square edge at right of outlet bore 212 and adjoining surface of outlet bore 212.” Pet. 22. Ameriforge’s declarant, Dr. Stevick, also testifies that Baker’s Figure 9 shows the required cutting edge. Ex. 1011 ¶ 62.

WOM generally advocates that Baker does not disclose the claimed cutting edge. At the outset, we discern that WOM contends that no content of Baker’s disclosure conveys any structure that performs a “cutting function.” See, e.g., PO Resp. 17. More particularly, WOM argues that “Baker uses a broad shearing surface that is designed to crush the wireline or cable in order to shear it at the point adjacent to its upper corner.” *Id.* In that respect, it appears that WOM is drawing a distinction between an act of “shearing” and an act of “cutting.” Indeed, that was a position advocated by WOM at oral argument. See, e.g., Tr. 32–33. Yet, WOM does not point to

adequate record evidence tending to support the proposition that the shearing operations described in Baker would not have been understood as acts of cutting. Here, it is clear that in “shearing” a pipe, Baker contemplates the severing of one portion of the pipe from another, and recognizes that such shearing action is accomplished using “blades.” *See, e.g.*, Ex. 1002, 1:49–53. Indeed, other prior art of record, directed to gate valves performing a shearing operation, describe the component facilitating such “shear[ing] off” of tubing as a “cutting edge.” Ex. 1003, 1:35–38, 4:22–25. We, thus, are persuaded on this record that Baker’s disclosure of shearing such structures as “a wire line or other tubular member” (Ex. 1002, 6:37–38), would be recognized as “cutting” those structures.

WOM advocates two additional approaches in contending that Baker does not disclose the “cutting edge” required by the claims. On the one hand, WOM contends that if the horizontal flattened portion of Baker’s outlet bore 212 of sleeve 210 (shown, for instance, in Figure 10, reproduced on the right) that contacts a pipe is likened to the required “cutting edge,” the alleged deficiency, in such respect, is that the noted portion of Baker is not “narrow,” and “not all of it would perform the required cutting function.” PO Resp. 17–18. On the other hand, WOM contends that if the cutting edge is considered only the “upper corner” of outlet bore 212 (shown in Figure 10 contacting the corner of insert ring 226), then



“that upper corner is not adjacent to the inclined surface as in the ’650 Patent’s claimed design.” *Id.* at 18.

WOM does not explain persuasively why the portion of outlet bore 212 that is depicted in Figure 10 as a flattened horizontal portion is a structure that is not “narrow.” Indeed, pointing to the supplemental Declaration testimony of Dr. Stevick, Ameriforge urges that the noted surface is one that would be regarded as narrow and performing the act of cutting. Pet. Reply 18 (citing Ex. 1022 ¶¶ 15–16, 48). In that respect, Dr. Stevick testifies that “the width of the surface defining Baker’s outlet bore 212 is only about 7.3% of the circumference of the bore, meaning that the surface is about 13.7 times longer than it is wide.” Ex. 1022 ¶ 16. We credit that testimony. A surface that is significantly longer than it is wide is consistent with a conclusion that the surface is a component regarded as narrow. Although WOM and its declarant, Mr. Gregg Perkin, disagree, characterizing the noted surface as “broad” (PO Resp. 17; Ex. 2004 ¶ 59), they do not explain adequately the basis for that characterization. Moreover, WOM also does not explain persuasively why the pertinent surface does not perform the required cutting function. As is clear from Baker’s disclosure, the pertinent surface is one that contacts the pipe during the course of the shearing operation of the pipe.

We also observe that other prior art of record makes clear how a person of ordinary skill in the art would understand what constitutes a “cutting edge.” To that end, we note that Dare, which, as noted above, also is directed to a gate valve performing shearing of tubing, explains that its gate 42 includes a “cutting edge” having a variable dimension/thickness “D.” Ex. 1003, 4:22–38. That dimension extends a distance along gate 42

within port 44. *See* Ex. 1003, Figure 5 (reproduced *supra*). Dare’s disclosure, thus, supports a conclusion that a skilled artisan would view the surface of Baker’s sleeve 212, shown, for instance, in Figure 10, as a horizontal surface extending within bore 208 as part of a cutting edge.

In any event, even assuming that the above-discussed horizontal surface of Baker’s sleeve 212 is not considered properly the “cutting edge,” we are persuaded that Baker has that structure so configured as required by claim 9. Claim 9 recites the step of:

providing a single inclined surface on said aperture through said gate such that said aperture opens from a minimum size adjacent said cutting edge to a maximum size distal said cutting edge, said single inclined surface extending from said minimum size to said maximum size of said aperture.

Thus, the claim requires that an aperture on which a single inclined surface resides includes a “minimum size” adjacent the cutting edge and a “maximum size” distal from the cutting edge. In that respect, the claim specifies how the slope of the inclined surface is oriented.

Here, Ameriforge has pointed to Baker’s inlet tapered surface 214 as constituting the claimed single inclined surface. Pet. 24.⁸ Baker illustrates inlet tapered surface 214 in Figures 9–11 (reproduced *supra*), and describes that the surface “diverges outwardly toward seat ring 206.” Ex. 1002, 6:9–11. Ameriforge’s position concerning the presence of a single inclined surface in Baker, thus, is persuasive. Indeed, we do not discern disagreement in that respect by WOM. Even if the “cutting edge” must be considered only the upper corner of Baker’s sleeve 212, it is clear that the

⁸ Dr. Stevick testifies that the configuration of Baker’s tapered surface 214 is analogous to that of inclined surface 124, shown, for instance in Figures 2 and 3 of the ’650 patent (reproduced *supra*). *See* Ex. 1011 ¶¶ 67, 58.

slope or incline of inlet tapered surface 214 is oriented in the same manner set forth in claim 9, i.e., the minimum size of the aperture that forms part of the tapered surface is proximal the cutting edge and the maximum size is distal the cutting edge. Although there is some expanse of the horizontal surface of sleeve 212 at the point of the minimum size, it is not apparent why that precludes a determination that the minimum size is, nonetheless, adjacent the cutting edge.

For the foregoing reasons, we are satisfied that Baker discloses the “cutting edge” required by claim 9.

b. *“said inclined surface produces a force on said pipe to move said pipe away from said gate.”*

Claim 9 also requires that the inclined surface operates to produce a force on the pipe to move the pipe away from the gate. Ameriforge contends that the required force would be produced by Baker’s tapered surface 214. Pet. 24. In support of that contention, Ameriforge relies on Dr. Stevick’s Declaration, in which he testifies that “Baker’s gate includes a single inclined surface that extends along a majority of the length of the bore and that, once in contact with the tubular, will impart a force on the tubular in a direction away from the gate[.]” Ex. 1011 ¶ 67.

WOM argues that Baker’s tapered surface 214 would not operate to impart the force required by claim 9. *See, e.g.*, PO Resp. 19. In making that argument, WOM generally urges that “Baker’s design will not necessarily forcibly push a cut tubing away from its gate in any and all circumstances because in some cases its broad shearing surface may not reliably cut it while in other cases the Baker design may pinch the cut OCTG [oil country tubular goods].” *Id.* Thus, according to WOM, Baker does not satisfy the

pertinent requirement of claim 9 because, in some circumstances, a particular type of tubular component, i.e., OCTGs, may be pinched if used in Baker's gate valve. In taking that position, WOM relies on the testimony of Mr. Perkin (Ex. 2004). *See, e.g., id.* at 17–21. In Mr. Perkin's view, use of a particular 2 $\frac{7}{8}$ " outer diameter ("OD") tubing may cause a tube to be "pinched" and thus not forced away from the gate. *See, e.g.,* Ex. 2004 ¶ 59. Ameriforge does not agree with WOM or Mr. Perkin, and points to the countervailing testimony of its declarant, Dr. Stevick, challenging WOM's position and the opinion of Mr. Perkin. *See* Pet. Reply 9–18 (citing Ex. 1022).

At the outset, we observe that claim 9 does not call for any particular sized tubing to be cut and pushed away via the inclined surface. Rather, the claim simply requires that it is a "pipe" that is cut and moved away from the gate. Baker clearly provides that its shearing gate valve is operable to "shear a wire line or other tubular members extending" through the valve. Ex. 1002, 6:35–41. WOM does not undermine Ameriforge's showing that Baker's disclosure encompasses the shearing of a "pipe."

Moreover, WOM does not offer any persuasive explanation why Baker's tapered surface 214 would be unable to impart a force to a pipe or other tubular member contemplated by Baker to move that tubular member away from the gate once it has been cut. In that respect, WOM seeks to discredit Dr. Stevick's testimony, but does not explain adequately why that testimony should be disregarded. *See* PO Resp. 19–20. WOM relies on the testimony of Mr. Perkin (*id.*, citing Ex. 2004 ¶¶ 62–66), but Mr. Perkin seemingly bases his testimony on a particular size and type of OCTG that is not required by claim 9. Given Dr. Stevick's testimony, and noting the

marked similarity in the design and operation of the gate valves of the '650 patent and Baker, and in particular the arrangement of their respective inclined or tapered surfaces, we are satisfied that the particular requirement in claim 9 directed to the production of a force by the inclined surface to move a "pipe" away from the gate is met.

Nevertheless, even assuming the claims are construed to require the particular type and size of tubing that is contemplated by Dr. Perkin, we are not persuaded that such construction patently distinguishes claim 9 from Baker. WOM's assertion that Baker's assembly "will not necessarily" push the tube away from the gate "in any and all circumstances" (PO Resp. 19) is seemingly a recognition that, in some cases, it will. WOM does not explain why the success of Baker's gate valve in some circumstances in pushing the noted tubing away from the gate is insufficient to account for the pertinent requirement of claim 9. *See Hewlett-Packard Co. v. Mustek Sys., Inc.*, 340 F.3d 1314, 1326 (Fed. Cir. 2003) ("a prior art product that sometimes, but not always, embodies a claimed method nonetheless teaches that aspect of the invention").

Moreover, we are cognizant of Dr. Stevick's testimony that the very potential deficiency that WOM and Mr. Perkin attribute to Baker's gate valve vis-à-vis the 2 $\frac{7}{8}$ " OD tubing would also be present in the gate valve of the '650 patent. *See, e.g.*, Ex. 1022 ¶¶ 31–34, 50–54. In that regard, we understand Dr. Stevick's testimony to convey that, given the similarity in the design of Baker's gate valve and that of the '650 patent, to the extent that the prospect of potential pinching exists in Baker's gate valve, such prospect would also arise in the gate valve of the '650 patent. Yet, there is no

suggestion from WOM that the gate valve described in the '650 patent lies outside the scope of claim 9.

For the foregoing reasons, we do not discern why Baker's tapered surface 214 would somehow be inadequate to direct a cut tubular away from the gate valve as required. Accordingly, we are persuaded that Ameriforge has shown that the requirement of an inclined surface that produces a force on a pipe to move the pipe from a gate upon cutting of the pipe is taught in Baker.

c. Conclusion – Anticipation of Claim 9

We have considered the record before us, including the Petition, WOM's opposition, and Ameriforge's Reply. We conclude that Ameriforge has shown by a preponderance of the evidence that claim 9 is anticipated by Baker. *See, e.g.*, Pet. 24.

2. Claim 12

Claim 12 depends from claim 9 and adds the limitation of "utilizing said gate valve on a wellbore without using a B.O.P." In that respect, claim 12 does not require that the gate valve itself be used to replace a BOP, but, instead, must be operable to be used without a BOP. Baker does not limit its gate valve to use with a BOP. We do not discern that claim 12 adds any feature distinct from the disclosure of Baker.

Accordingly, we are persuaded that Ameriforge has shown by a preponderance of the evidence that claim 12 is anticipated by Baker.

D. Obviousness

Ameriforge proposes grounds of unpatentability for claims of the '650 patent based on: (1) Baker and Dare; (2) Baker and Collie; and (3) Baker and Schlegelmilch.

1. Principles of Law

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations. See *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We also recognize that prior art references must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (citing *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)).

2. Level of Skill in the Art

In determining the level of skill in the art, various factors may be considered, including “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citing

Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc., 807 F.2d 955, 962 (Fed. Cir. 1986)).

There is evidence in the record before us that reflects the knowledge level of a person with ordinary skill in the art. Ameriforge's declarant, Dr. Stevick, testifies the following as to the level or ordinary skill in the art:

21. It is my opinion that a person of ordinary skill in the art at the time the '650 Patent was originally filed (November 6, 2001)[footnote omitted] is a person who earned a bachelor of science degree in mechanical engineering and had two to three years of engineering experience related to shearing gate valves and/or shear ram-type blowout preventers in the oil and gas industry.

22. Such a person would be generally familiar with the use of shearing gate valves for cutting wirelines, and "macaroni" and coiled tubing in oil and gas wells, such as during drilling and/or workover operations of wells. Such a person would also recognize that the functionality of shearing tubulars with shearing gate valves is largely governed by the same mechanical engineering principles that govern the shearing of tubulars in shearing-ram blowout preventers.

Ex. 1011 ¶¶ 21, 22.

WOM's declarant, Mr. Perkin, expresses agreement with Dr. Stevick's characterization of the level of ordinary skill in the art. Ex. 2004 ¶ 30. We acknowledge and accept the parties' representations as to the level of ordinary skill in the art.

3. Obviousness Based on Baker and Dare

Ameriforge contends that claims 1, 2, 4–10, 12–14, 16, 18, and 19 are unpatentable over Baker and Dare, and lays out in the Petition the basis for that contention. See Pet. 27–33. WOM generally contends that Dare does

not remedy deficiencies discussed above with respect to Baker vis-à-vis a cutting edge and an inclined surface producing a force to push cut pipe out of the way of a gate valve, as is required by each of claims 1, 2, 4–10, 12–14, 16, 18, and 19. For the reasons noted above, we do not agree that Baker has such deficiencies.

We take opportunity here, however, to consider the disclosures of Dare also pertaining to a “cutting edge” and an “inclined surface.” As discussed above, Dare provides that its gate valve 42 includes cutting edge 90 that extends within bore 44 and is variable in size. Ex. 1003, 4:22–38. The gate also has inclined portions characterized as “inclined surface 98” and “inclined surface 102.” To the extent that those surfaces are not regarded as “a single inclined surface,” we observe that Dare makes clear that the angles of incline of those surfaces are variable. *Id.* at 4:39–53. Although Dare gives particular examples of preferred angles, Dare also contemplates that different angles may be employed in other circumstances. *Id.* at 5:20–23, 45–47. In light of Dare’s teachings, we discern that a skilled artisan would have appreciated readily that a uniform angle was a viable option for the inclination of both surface 98 and surface 102.

WOM also mounts a challenge to the Baker and Dare ground that generally centers on the following claim requirements: (1) “mounting said gate valve on said well casing for controlling fluid flow in place of at least one BOP on said well casing” (claim 1); and (2) “said subsea riser package installation being operable for replacement of a B.O.P.” (claim 14).

Ameriforge contends that in combining the teachings of Dare and Baker, the resulting gate valve, or subsea riser package installation, would be operable to replace a BOP. Pet. 28–29. In that respect, Ameriforge

explains that, to the extent “Baker’s gate valve is not sufficiently large to be used in place of or without using a BOP, it would have been obvious to also simply increase the size of Baker’s gate valve to do so.” *Id.* at 32.

Ameriforge supports its obviousness position through citation to Dr. Stevick’s testimony. *Id.* Dr. Stevick testifies that the type of “macaroni tubing” that Dare contemplates as needing to be cut is recognized in the art as being variable in size, including “up to 3.5 inches.” Ex. 1011 ¶ 43. That particular size of tubing is notable as, during the course of this proceeding, WOM has represented that to replace a BOP, a gate valve “must be able to reliably and repeatably cut production tubing of at least 2.5 inch diameter.” Paper 12, 9.⁹ Ameriforge, thus, urges the following:

A person of ordinary skill would have recognized the “macaroni tubing” discussed in Dare was known to range in diameter up to 3 ½ inches. Ex. 1011 at ¶ 44. Such a person thus would have understood that Dare’s shearing gate valve and similar types of shearing gate valves could be sized to shear macaroni tubing with such larger diameters, and that it would have been desirable to do so to be usable with various known sizes of tubing. Ex. 1011 at ¶ 79.

Pet. 32.

It is apparent that WOM generally disagrees that Dare’s teachings amount to a configuration of a gate valve operating in place of, or to replace, a BOP. *See, e.g.*, PO Resp. 34–35. In our view, however, WOM neglects to consider fully what the teachings of Dare would have conveyed to one of

⁹ In making that representation, WOM pointed to column 1, lines 33–53 of the ’650 patent, which expresses a desire for a gate valve to cut production tubing measuring 2⁷/₈ inches to replace BOP stacks. We observe also that claim 18 recites that the tubular in question that is to be cut is “greater than two and one-half inches” in diameter.

ordinary skill in the art. Dare contemplates that, by operation of a hydraulic actuator mechanism and due to the configuration of its gate valve, the gate valve is useful in an emergency to shut in a well. Ex. 1003, 4:61–66. We understand that shutting in the well means that the well is sealed such that fluid no longer passes through the valve. Furthermore, in shutting in the well, the gate valve severs “large diameter tubing,” and “‘macaroni’ type tubing.” *Id.* at 4:67–5:3. Ample evidence of record conveys that “macaroni” tubing is understood in the art as being used in well workover operations and includes tubing sizes of “up to 3.5 inches” *See, e.g.*, Ex. 1011 ¶ 43 (citing “Coiled Tubing Handbook, 3rd Ed. 1998 at 131”). Furthermore, Dare, itself, conveys that its gate valve is configured to shear even larger diameter tubing than that regarded as “macaroni” tubing. Ex. 1003, 5:1–3.

Accordingly, on this record, including the Specification of the ’650 patent, we are persuaded that a skilled artisan would have appreciated that Dare’s gate valve is sufficiently robust to operate in place of, or as a replacement for, a BOP.¹⁰ We also agree with Ameriforge that it would have been obvious to combine Baker’s and Dare’s teachings so as to arrive at the gate valve configuration required by claims 1, 2, 4–10, 12–14, 16, 18, and 19. *See* Pet. 29–33; Pet. Reply 21. For instance, with recourse to content of the prior art, and Dr. Stevick’s testimony, Ameriforge contends that the combination of Baker and Dare predictably would have conveyed a gate valve configured to harness the particular beneficial characteristics

¹⁰ Although not required by the claims of the ’650 patent, we also are persuaded that, based on description in the ’650 patent (for instance, column 1, lines 33–40), one of ordinary skill in the art also would have understood that Dare’s gate valve may operate in lieu of a “BOP stack.”

attributed to the respective valves of Baker and Dare. In particular, Ameriforge contends that one of ordinary skill would have appreciated that Baker's gate valve demonstrates improved flow characteristics arising due to the particular configuration of its tapered bore. Pet. 29–30 (citing Ex. 1011 ¶¶ 79–82. Ameriforge also submits a skilled artisan would have recognized from Dare's teachings the practical benefits of a gate valve sized and constructed to provide the shearing capacity and flow control of a BOP, without the need for an additional BOP component. *Id.* at 32 (citing Ex. 1011 ¶¶ 44, 70–72, 79). We are persuaded that Ameriforge relies on rational, credible reasons for combining the teachings of Baker and Dale. The combination of those teachings would have suggested to a person of ordinary skill in the art, who is also a person of ordinary creativity, *see KSR*, 550 U.S. at 421, a gate valve structured as required by the claims of the '650 patent, and one that accomplishes the emergency shearing functions attributed to Dare's invention. More particularly, given the content of the prior art, a skilled artisan would have recognized reasonably that a gate valve may be configured, and be operable, to cut tubing and seal a wellbore at a level understood as suitable for replacing a BOP.

We have considered the record before us, including the record evidence, the Petition, WOM's Patent Owner Response, and Ameriforge's Reply. We are persuaded that Ameriforge has demonstrated that all the features of claims 1, 2, 4–10, 12–14, 16, 18, and 19 are disclosed by Baker and Dare, and that there is persuasive reasoning for combining the teachings of Baker and Dare. *See* Pet. 20–33.

4. *Obviousness Based on Baker and Collie*

Ameriforge contends that claims 1, 2, 4–7, 9, 12–14, 16, 18, and 19 are unpatentable over Baker and Collie. As noted above with respect to the Baker and Dare combination, WOM argues that Collie does not remedy alleged deficiencies in Baker in connection with a cutting edge and the arrangement and operation of an inclined surface of a gate valve. Those are arguments with which we do not agree.

Ameriforge generally relies on Collie for its teaching of configuring a gate valve to be used without the need for a BOP. As discussed above, Collie is directed to a “completion system comprising a christmas tree mounted on a wellhead housing.” Ex. 1004, 1:37–39. An embodiment of Collie’s system includes “lower riser package 128” that operates with coiled tubing string, and describes that the system may be used in situations specifically where “a BOP stack is not used on the tree.” *Id.* at 6:36–60. Collie also discloses the following:

Installation and recovery of the coiled tubing string may be carried out from a lightweight intervention vessel, without the use of a BOP. The lower riser package includes upper and lower valves 138, 140 (for example large bore gate valves) at least one of which may, if required in an emergency, be used to shear the coiled tubing string.

Id. at 6:53–59.

Thus, Collie conveys that gate valves may be employed that operate in emergency situations to shear tubing without the use of a BOP. As noted by Ameriforge, a skilled artisan also would have known that gate valves may employ a hydraulic actuator as the driving component for such a valve. Pet. 36–37 (citing Ex. 1004, 5:20–22; Ex. 1011 ¶¶ 23, 68, 69). In light of Collie’s teachings, we are persuaded that one of ordinary skill in the art

would have understood that a gate valve, such as that of Baker, may be rendered suitably robust so as to operate in place of a BOP. In that regard, a skilled artisan would have looked to Collie for its teachings of a gate valve having a configuration that is beneficial in providing for a structure viewed as “lightweight,” yet, in an emergency situation, operates to shear coiled tubing string. Ex. 1004, 6:53–59.

We have considered the record, including Ameriforge’s Petition with respect to the ground of unpatentability based on Baker and Collie (Pet. 33–37), as well as WOM’s Response challenging that ground. We are persuaded that Ameriforge has accounted for the features of claims 1, 2, 4–7, 9, 12–14, 16, 18, and 19 based on Baker and Collie.

5. Obviousness Based on Baker and Schlegelmilch

Ameriforge contends that claims 6–8 and 10 are unpatentable over Baker and Schlegelmilch. Claims 7 and 8 depend from claim 6. Claim 10 depends from claim 9. Claim 6 includes a step of measuring the force necessary to cut pipe. Claim 10 also includes a step of determining such force. WOM presents no arguments with respect to claims 6–8 in connection with the ground based on Baker and Schlegelmilch. With respect to claim 10, WOM generally urges that the claim is patentable based on its dependency from claim 9, which WOM maintains has not been shown to be unpatentable.

The record before us supports a determination that the act of measuring or determining the necessary cutting forces is the routine exercise of an ordinary artisan’s skill. See Ex. 1011 ¶¶ 51, 74, and 75 (citing [American Petroleum Institute] Specification 16A, Specification for Drill-Through Equipment § 4.7.2.4 *Shear Ram Test* (1997))” and Ex. 1002, 6:47–

53).¹¹ Indeed, that determination also is evidenced by Schlegelmilch. Schlegelmilch is a thesis from the Massachusetts Institute of Technology that describes tests and processes for determining the amount of cutting force necessary to shear coiled tubing of various sizes and dimensions. *See, e.g.*, Ex. 1005, 41–42. Given both Schlegelmilch’s and Baker’s teachings, we agree with Ameriforge that “a person of ordinary skill in the art would have recognized the potential benefits of performing the tests contemplated by Schlegelmilch using a test fixture and cutting blade with dimensions corresponding to Baker’s valve.” Pet. 40–41 (citing Ex. 1011 ¶ 96). We, thus, conclude that one of ordinary skill in the art would have appreciated that the amount of force necessary to cut a pipe may be measured or determined.

6. *Secondary Considerations of Non-Obviousness*

“Secondary considerations,” such as “commercial success,” may have relevance in assessing the obviousness or nonobviousness of a claimed invention. *See Graham v. John Deere Co.*, 383 U.S. at 17–18. In its Patent Owner Response, WOM contends that it has enjoyed commercial success in selling its “lightweight intervention systems” to a single customer entity—

¹¹ As testified by Dr. Stevick, “[a] person of ordinary skill would have understood that it would have been . . . beneficial to measure the ‘actual pressure and force’ required to shear tubing with a shearing gate valve (such as, for example, to validate its ability to perform its intended functions), especially where such a shearing gate valve could be used in place of a BOP.” Ex. 1011 ¶ 51.

Helix Energy Solutions (“Helix”). PO Resp. 5. In support of that contention, WOM relies on the Declaration of William Kinnear.¹²

WOM generally represents that it has sold some of its systems to Helix since 2002, and that such sales “and WOM’s services delivered in connection with” those systems have generated a certain revenue. PO Resp. 5. WOM, however, provides little, if any, context for the numbers that it advances. In that respect, the number of units sold to a single customer and the amount of revenue generated from those sales tells us little with respect to any commercial success of the particular product referenced by WOM. *See In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996) (“This court has noted in the past that evidence related solely to the number of units sold provides a very weak showing of commercial success, if any.”). Indeed, notably absent from WOM’s evidence of commercial success is any indication of the market share that its asserted sales represent, or any breakdown between sales revenue and revenue associated with servicing the systems. Accordingly, WOM has provided a very weak showing of commercial success in support of nonobviousness based on secondary considerations.

7. Conclusion - Obviousness

We recognize that evidence of secondary considerations, such as that presented by Patent Owner, must be considered in route to a determination of obviousness/nonobviousness under 35 U.S.C. § 103. Accordingly, we consider anew the issue of obviousness under 35 U.S.C. § 103, carefully evaluating and weighing both the evidence presented by Petitioner and the objective evidence of nonobviousness provided by Patent Owner. We have

¹² A redacted version of Mr. Kinnear’s Declaration appears in the record as Exhibit 2003. An unredacted version appears as Paper 23.

considered the entirety of the evidence in this proceeding, including Ameriforge's strong evidence of obviousness and WOM's very weak evidence of commercial success, and conclude that Petitioner has shown by a preponderance of the evidence that claims 1, 2, 4–10, 12–14, 16, 18, and 19 would have been obvious over Baker taken with any of Dare, Collie, or Schlegelmilch.

E. Motion to Seal

WOM filed a Motion to Seal portions of its Patent Owner Response,¹³ as well as portions of the Declaration of Mr. William Kinnear.¹⁴ Ameriforge has not filed an opposition to the Motion to Seal.

There is a strong public policy in favor of making information filed in an *inter partes* review open to the public, especially because the proceeding determines the patentability of claims in an issued patent and, therefore, affects the rights of the public. Under 35 U.S.C. § 316(a)(1) and 37 C.F.R. § 42.14, the default rule is that all papers filed in an *inter partes* review are open and available for access by the public; however, a party may file a concurrent motion to seal and the information at issue is sealed pending the outcome of the motion. It is only “confidential information” that is protected from disclosure. 35 U.S.C. § 316(a)(7); *see* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,760 (Aug. 14, 2012). The standard for granting a motion to seal is “good cause.” 37 C.F.R. § 42.54(a). The party moving to seal bears the burden of proof in showing entitlement to the

¹³ Unredacted (Paper 20) and redacted (Paper 22) versions of the Patent Owner Response appear in the record.

¹⁴ An unredacted version of Mr. Kinnear's Declaration appears in the record as Paper 23, and a redacted version appears as Exhibit 2003.

requested relief, and must explain why the information sought to be sealed constitutes confidential information. 37 C.F.R. § 42.20(c). As set forth in the Trial Practice Guide (77 Fed. Reg. at 48,761), there is an expectation that information will be made public if identified in this Final Written Decision.

We have reviewed the unredacted versions of WOM's Patent Owner Response (Paper 20) and Mr. Kinnear's Declaration (Paper 23). We conclude that they contain confidential business information. None of the content of those documents that is asserted as constituting confidential business information has been identified in this Final Written Decision in reaching a determination in this proceeding with respect to the claims of the '650 patent. We are persuaded that good cause exists to have those documents remain under seal.

The record will be maintained undisturbed pending the outcome of any appeal taken from this decision. At the conclusion of any appeal proceeding, or if no appeal is taken, the documents will be made public. See Trial Practice Guide, 77 Fed. Reg. at 48,760–61. Further, either party may file a motion to expunge the sealed documents from the record pursuant to 37 C.F.R. § 42.56. Any such motion will be decided after the conclusion of any appeal proceeding or the expiration of the time period for appealing.

III. CONCLUSION

Ameriforge has shown by a preponderance of the evidence that:

A. Claims 9 and 12 are unpatentable under 35 U.S.C.

§ 102(b) as anticipated by Baker;

B. Claims 1, 2, 4–10, 12–14, 16, 18, and 19 are unpatentable under 35 U.S.C. § 103(a) over Baker and Dare;

C. Claims 1, 2, 4–7, 9, 12–14, 16, 18, and 19 are unpatentable under 35 U.S.C. § 103(a) over Baker and Collie;

D. Claims 6–8 and 10 are unpatentable under 35 U.S.C. § 103(a) over Baker and Schlegelmilch;

IV. ORDERS

After due consideration of the record before us, it is:

ORDERED that claims 1, 2, 4–10, 12–14, 16, 18, and 19 of the '650 patent are held unpatentable;

FURTHER ORDERED that WOM's Motion to Seal (Paper 23) is *granted*; and

FURTHER ORDERED that, because this is a Final Written Decision, the parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

Case IPR2015-00233

Patent 6,601,650 B2

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