

PUBLIC VERSION – REDACTED

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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WEATHERFORD INTERNATIONAL, LLC,  
WEATHERFORD/LAMB, INC., WEATHERFORD US, LP, and  
WEATHERFORD ARTIFICIAL LIFT SYSTEMS, LLC,  
Petitioner,

v.

PACKERS PLUS ENERGY SERVICES INC.,  
Patent Owner.

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Case IPR2016-01509  
Patent 7,861,774 B2

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Before SCOTT A. DANIELS, NEIL T. POWELL and  
CARL M. DEFRANCO, *Administrative Patent Judges*.

DANIELS, *Administrative Patent Judge*.

FINAL WRITTEN DECISION  
*35 U.S.C. § 318(a) and 37 C.F.R. § 42.73*

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## I. INTRODUCTION

### A. Background

Weatherford International LLC, and others, (“Weatherford” or “Petitioner”) filed a Petition (Paper 1, “Pet.”) challenging claims 1, 3–7, 9–10, 12, and 16 of the ’774 patent and supporting its challenge with the testimony of Dr. Vikram Rao, Ph.D. (Ex. 1007). We instituted trial for claims 1, 3–7, 9–10, 12 and 16 of the ’774 patent on certain grounds of unpatentability alleged in the Petition. Paper 23 (“Decision to Institute” or “Inst. Dec.”).

After institution of trial, Rapid Completions LLC, (“Rapid” or “Patent Owner”) the exclusive licensee of the ’774 patent, filed a Patent Owner Response, along with a Declaration by Mr. Harold E. McGowen, PE, (“McGowen Declaration”).<sup>1</sup> Petitioner filed a Reply (Paper 39, “Pet. Reply”) and both parties filed motions to exclude certain evidence. *See* Papers 44, 46.

A consolidated hearing for IPR2016-01509, IPR2016-01514 and IPR2016-01517, each involving the same Petitioner and the same Patent Owner, was held on November 2, 2017. The ’774 patent is a continuation of U.S. Patent No. 7,534,634, which is in turn, a continuation of U.S. Patent No. 7,134,505, which are at issue in the latter two proceedings. The transcript of the consolidated hearing has been entered into the record. Paper 61. (“Tr.”).

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<sup>1</sup> Packers Plus is the owner of the ’774 patent, however, because Rapid asserts itself as the exclusive licensee with all substantial rights to enforce the ’774 patent, we refer to Rapid as the respondent in this proceeding.

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We have jurisdiction under 35 U.S.C. § 6(c). This final written decision is issued pursuant to 35 U.S.C. § 318(a).

Weatherford has shown by a preponderance of the evidence that claims 1, 3–7, 9–10, 12 and 16 of the '774 patent are unpatentable.

*B. Additional Proceedings*

In addition to this petition, The '774 patent is involved in a concurrent district court action, *Rapid Completions LLC v. Baker Hughes Incorporated*, No. 6:15-cv-00724 (E.D. Tex.), which was filed July 31, 2015. Pet. 4. The '774 patent is also challenged in IPR2016-00598 and IPR2016-01506. *Id.*

*C. The '774 Patent*

The '774 patent describes a method for fluid treatment of a well bore, namely “fracing,” or “fracturing” and a tubing string tool for treating and stimulating flow from particular segments of the well bore in an oil or gas formation while sealing off other segments. Ex. 1001, Abstract. The well bore can be either an open hole or a cased hole. *Id.* at 3:66–4:3. Typically, a tubing string is run into a well bore as a conduit for oil and gas products to flow to the surface. *Id.* at 1:28–48. But when natural formation pressure is insufficient to obtain a desired product flow, a well “stimulation” technique is employed, i.e. fracing, which involves injecting fracturing fluids into the formation to enlarge existing channels and thereby improve inflow into the well bore. *Id.* at 1:35–39. And, because a well bore may cross multiple zones within an oil or gas formation, only some of which contain desirable products, the ability to inject “treatment fluids wherein fluid is injected into selected intervals of the well bore, while other intervals are closed,” is key to controlling and optimizing production from the well. *Id.* at 2:28–30.

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Figure 1b of the '774 patent is reproduced below. We note that Figure 1b as illustrated has a vertical orientation, and referring to Figure 1a and other figures as well as the claims, the well bore can be configured also in a non-vertical orientation, for example horizontal.

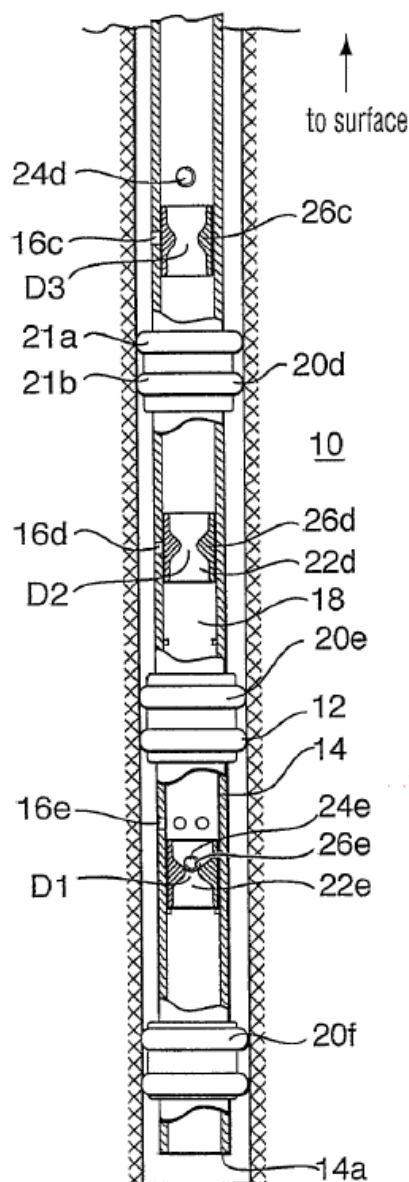


FIG. 1b

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As shown, above, in Figure 1b, and described in the '774 patent, tubing string 14 includes a series of ports 16c, 16d, 16e, along its length, with a ball-actuated sliding sleeve 26c, 26d, 26e, mounted over each port, for selectively permitting the release of fluid from certain segments of the tubing string. *Id.* at 2:39–65, 6:37–7:31. Special sealing devices, called “solid body packers” or “SBPs,” 20d, 20e, 20f, are mounted along the length of the tubing string downhole and uphole of each port. *Id.* at 2:39–65, 6:4–36. The solid body packers are disposed about the tubing string and seal the annulus between the tubing string and the well bore wall, thereby dividing the well bore into a series of isolated segments, also called stages. *Id.* at 6:18–24.

As further observed in Figure 1b, when sliding sleeve 26e covering port 16e is activated by ball 24e to an open position as shown, fluid can pass into one segment of the well bore but is prevented from passing into adjacent segments by packers 20e and 20f positioned on either side of the port. *Id.* at 6:50–57. Thus, ball 24e, as the smallest ball passes through sleeves 26c and 26d before activating sliding sleeve 26e. With port 16e open, as shown above, a stimulation of this segment of the well bore can be undertaken.

With this structure, sequential stimulation of the adjacent well bore segments can be implemented because “[e]ach of the plurality of sliding sleeves has a different diameter seat and therefore each accept different sized balls.” *Id.* at 7:14–15. In other words, working uphole, each consecutive sliding sleeve has a slightly larger seat and is activated by a slightly larger ball than the previous sliding sleeve. *Id.* Hence, a sequential stimulation of each adjacent uphole segment of the well bore is achieved with the increasing sleeve seat and ball diameter.

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